

OUR BOOK SHELF.

The Influence of Alcohol and other Drugs on Fatigue. The Croonian Lectures delivered at the Royal College of Physicians in 1906. By Dr. W. H. R. Rivers. Pp. viii+136. (London: Edward Arnold, 1908.) Price 6s. net.

IN these the Croonian lectures delivered before the Royal College of Physicians, London, in 1906, the author details the results obtained in an experimental research on the influence of certain drugs—caffeine, alcohol, cocaine, strychnine, and tobacco—on muscular and mental fatigue. The method employed for estimating muscular fatigue was by means of an ergograph, the latest form of Kraepelin's modification of Mosso's instrument, the records being obtained graphically in the form of an ergogram, and representing the movements of one joint. Mental fatigue, or more precisely the fatigue of attention, was studied by McDougall's method, in which the subject has to hit a succession of dots which pass before him across a slit. Many factors which may influence the results were recognised and allowed for, such as the effects of attention, interest in the work, conversation, the habitual use of the substances experimented with, e.g. caffeine in tea and coffee, alcoholic drinks and smoking, &c. The disturbing influence of such factors was very well shown, for example, in the case of tea and coffee—withholding these beverages before commencing the experiments with caffeine was found to be followed by a loss of energy, so that the earlier ergographic records became untrustworthy as indicating the effects of caffeine when administered. The flavour of the drugs also had to be disguised, so that the subject was unaware when he was or was not taking them.

The general results obtained may be summarised as follows:—caffeine in moderate doses (about 0.3 gram of the citrate) increases the capacity for both muscular and mental work, the stimulating action persisting for some time, and not being followed by any depressant action. Excessive doses, however, after a transitory stimulant action, are followed by a depressant action so marked that the drug in such circumstances becomes an accelerator of fatigue; in fact, caffeine may be a dangerous remedy in cases of prolonged fatigue.

Alcohol in small doses (5–10 c.c.) seemed to produce little effect, in larger doses (20–40 c.c.) the action was variable; in a subject not used to alcohol, sweating, giddiness, and other symptoms often ensued; the muscular work was at first increased, afterwards diminished, but there was a good deal of irregularity in the results, and this portion of the research is being continued, and the problem is one of great complexity. The capacity for mental work on the whole seemed to be lowered.

The researches carried out by Dr. Rivers are of great interest and importance, and it is to be hoped that they will be continued and extended to the other drugs mentioned.

The Moral Ideal; a Historic Study. By Julia Wedgwood. New and revised edition. Pp. xi+504. (London: Kegan Paul, Trench, Trübner and Co., Ltd., 1907.) Price 10s. 6d. net.

THE first edition of this book was published twenty years ago. It is indicative of the soundness of the original work as well as of the completeness of the revision that the numerous interpolated references to recent events and contemporary thought seem never to have an adventitious but always a natural and integral connection with the context in which they appear. The book is intended to be a contribution to the "history of human aspiration," which the author

regards as "the clue to all history," believing that "a partial and incomplete revelation of what men have sought to be tells us more of their true nature than does the most exhaustive record of what they have accomplished." From this point of view she gives a number of studies of the moral ideals which may be taken as characteristic of the races whose life has at different times formed part of the main stream of human progress. The spiritual histories of Egypt, India, Persia, Greece, and Rome are reviewed in succession, and an attempt is made to signalise the elements of cardinal importance which each has contributed to the moral development of Europe. Chapters follow dealing with the evolution of the moral consciousness of Christianity out of the mingled elements of eastern and western origin, while in a final study the author seeks to determine the relation of these earlier aspirations to the moral life of the present day, and considers, in particular, the relations between morality and modern science.

In her earlier chapters Miss Wedgwood appears to have followed the recognised authorities upon oriental history and religion, but from the point where she reaches the study of Greek ideals she depends largely upon her own reading and observation, and displays a fund of erudition as striking in profundity as it is engaging in quality. The variety and beauty of her illustrations from many literatures would alone suffice to make her pages interesting and impressive even if they were not decorated by the writer's own eloquence, sweetened by her catholic sympathy, and illuminated by her splendid moral enthusiasm.

Electricity: What is it? By W. Denham Verschoyle. Pp. xii+259. (London: Swan Sonnenschein and Co., Ltd., 1908.) Price 2s. 6d. net.

THE main object of this book is to sustain the contention that something more than the usually accepted electrical idea is needed if we would aim at solving the many problems which exist around us.

To solve these problems on the modern electrical theory, it is generally recognised that we still require as postulates:—(1) Positive electricity, (2) negative electricity, (3) an attractive force between them, (4) æther, (5) gravity, (6) life. "There seems at present no possibility of further consolidation in these premisses; they remain, as between themselves, isolated facts, having no relation to one another. We cannot express life in terms of positive electricity, for instance; or gravity, in terms of positive and negative electricity" (p. 232).

The author of this book, however, starting merely with three postulates, (1) absolute energy, (2) æther, (3) some form of interaction between them, develops a theory which claims to admit of the main facts of natural phenomena being arranged "in a homogeneous and inter-related series." The fundamental (though by no means new) conception of the theory is that of the *gyron*. The author supposes all matter to be made up of little planetary systems composed in their last analysis of gyrons which are themselves simply æther in an extremely energetic state of motion. The gyrons and systems of gyrons are supposed to resemble small discs in rapid rotation about a central axis, and in consequence capable of giving rise to three entirely distinct types of æther motion or *force*. These are called (1) the Alpha force, (2) the Beta force, (3) the Gamma force. Gravity and cohesion are different forms of the Alpha force; X-rays, light and heat are forms of the Beta force; electric and magnetic forces come in the category of the Gamma force.

It is not very clear how the author arrives at the existence of these forces emanating from the gyron,

but by means of them he is able to discuss the evolution of the atom, the relations of the elements, heat, light, electricity, dissociation. The "mystery of life" even is not excluded from the discussion.

The treatise, as the author himself frankly acknowledges, is a purely imaginative one, and we do not agree with him in thinking that the diverse and tentative views held just now by our leading investigators as to the ultimate constitution of matter afford a sufficient justification for the present attempt to explain matter and electricity by an effort of the imagination. Views and theories based on mathematical and experimental investigations are to us certainly more convincing.

The Fossil Fishes of the Hawkesbury Series at St. Peter's. By A. Smith Woodward, Mem. Geol. Surv. N. South Wales. (Sydney, 1908.)

DR. SMITH WOODWARD describes a series of Permian-Carboniferous fishes from St. Peter's, one of the Illawarra suburbs of Sydney. The greater number of the specimens, including genera new to the Hawkesbury formation, were obtained from a dark indurated shale. The discovery of *Sagenodus* is interesting in connection with recent discoveries of dipnoan fishes in Australia, from the fact that we have evidence of the forerunners of the surviving *Ceratodus* in various formations from the Devonian to the Jurassic, and it is suggested that *Ceratodus* may have evolved in the Australian region. A new palæoniscid genus, *Elpisopholis*, allied to *Phanerosteon* and *Sceletophorus*, is described, in addition to several new species of fishes. A few specimens, somewhat newer in age, were obtained from a soft grey shale resembling that at Gosford. The work is well illustrated by four plates and a restoration of the new genus.

LETTERS TO THE EDITOR.

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Lamarck's "Système des Animaux sans Vertèbres."

This work, as is well known, was first published in the ninth year of the Republic, or 1801 A.D. (i.e. the last nine months thereof). But, to judge from the usual bibliographies and library catalogues, it does not appear to be generally known that the original sheets were re-issued with a fresh title-page in the following year. The differences between the two title-pages are quite unimportant until the imprint is reached. This in the first issue reads as follows:—

A PARIS

Chez { L'AUTEUR, au Muséum d'Hist. Naturelle;
DETERVILLE, Libraire, rue du Battoir,
n° 16, quartier de l'Odéon.

AN IX—1801.

In the second issue the imprint is:—

A PARIS

Chez { Maillard, Libraire, rue du Pont de Lodi, N° 1.
Deterville, Libraire, rue du Battoir, N° 16,
quartier de l'Odéon.
Mouillardier, Imprimeur-Libraire, quai des
Augustins, N° 28.

AN X—1802.

That this was a re-issue and not a new edition is proved by a copy in the possession of my friend Mr. Victor W. Lyon, city engineer of Jeffersonville, Indiana. The text and tables present absolutely no difference from those of the first issue, and the new title-page, instead of forming a part of the first section, has been printed on a wide fly-leaf, the inner margin of which is folded round the adjoining leaves of the first section.

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This new title-page has some interest as suggesting that the work was taken up by the booksellers more warmly than had been anticipated, and that it was no longer necessary for the author to be at the trouble of selling his own copies.

Since the writings of many naturalists show that a confusion already exists in their minds between the "Système," 1801, and the "Histoire," 1815-22, it has seemed advisable to help them out of any fresh difficulty that might be presented by the existence of two dates for the "Système." Just now, when Lamarck is being specially commemorated, it may be thought worth while to publish this detail, which otherwise might be overlooked.

F. A. BATHER.

September 5.

The Hong Kong Typhoon of July 27-28.

THIS typhoon appears to have been very similar in size, direction, and intensity to that which caused such destruction in Hong Kong on September 18, 1906.

It was notified by both the Hong Kong and Manila observatories on July 26. It was then said to be in the Balintang Channel, which runs between Luzon, the northern island of the Philippines, and Formosa, and is about 500 (nautical) miles E.S.E. of Hong Kong; the observations available at that date showed it to be moving westwards, but were not sufficient to indicate that it was a storm of any great intensity. From the Balintang Channel it crossed some 500 miles of open sea without an observing station, and it was not until 6 p.m. on July 27 that the local indications were such as to cause the observatory officials in Hong Kong to hoist the signals indicating a typhoon within 300 miles of the colony. At 9.30 p.m. it was notified that the typhoon was moving towards the coast in the neighbourhood of Hong Kong. At 11.15 p.m. the signal was hoisted indicating that a typhoon was imminent. The barometer commenced to fall sharply at 10 p.m., and reached its minimum at 1 a.m. on July 28; the fall varied from half an inch to an inch in these three hours in different parts of the colony, the variation in the fall indicating that the typhoon centre passed close to the south of the island. The speed would seem to have been about normal. The typhoon was in the Balintang Channel on the morning of July 26, and the centre passed Hong Kong at 1 a.m. on July 28—500 miles in forty hours, or 12½ miles an hour.

Owing to the timely warning, and to the gale coming from the east, in which direction the harbour is well sheltered, the damage to the shipping in it was comparatively small; four large steamers were driven ashore, a steel four-masted barque lost two of her masts, and many of the smaller craft suffered, with some loss of life, but the majority had acted on the warning given, and sought such shelter as was available. Outside the harbour the most serious disaster was the loss of a river steamer bound from Canton to Hong Kong, and with it some 400 lives. H.M. destroyer *Whiting* was also driven ashore and badly damaged. On shore the damage far exceeded that done by the typhoon of 1906. The damage to trees, most of which are evergreens, such as banyans, was such as almost entirely to deprive the roads and gardens on the lower levels of much needed shade. The roads were covered with broken branches, which will take weeks to remove. Even such hard-leaved plants as bamboos are, in exposed situations, now nothing but masses of stalks and withered yellow leaves.

The houses suffered mainly in their roofs and windows; the roofing used consists of the pantiles and mortar rolls common to China and the East, and is very liable to slip with the vibration caused by a hurricane. Several of the lower-class houses were demolished, with some loss of life. The gale commenced about 10 p.m. on July 27, and ended about 4 a.m. on July 28. Unfortunately, both the Kowloon Observatory anemometer and that at Victoria Peak, 1800 feet above sea-level, were damaged during the gale, and records are not available. It is thought that the force of the wind far exceeded that of the typhoon of 1906, and was very near to, if it did not exceed, the highest previous record of 108 miles per hour, in 1896.

Hong Kong, August 11.

L. GIBBS.